

right breast contained no tumor. The left lower ribs were tender. There were dullness, decreased fremitus and diminished breath sounds over the base of the left lung. The heart appeared enlarged with the apical thrust in the anterior axillary line. The blood pressure was 140 mm. of mercury systolic and 70 mm. diastolic. The heart sounds and rhythm were normal. The abdomen was protuberant and soft without tenderness. A large non-tender mass in the splenic area, moving with respiration, extended downward to the level of the umbilicus. The liver edge was felt four fingers' breadth below the right costal border. It was smooth and not tender. A mass was felt in the suprapubic area. A large mass in the right buttock was felt through the rectum.

The hemoglobin content of the blood was 10 gm. per 100 cc. Leukocytes numbered from 8,500 to 11,000, with 80 per cent polymorphonuclear cells, 14 per cent lymphocytes and 6 per cent monocytes. The urine was amber colored, cloudy, acid in reaction with a specific gravity of 1.032 and a trace of albumin. The centrifuged sediment contained a few leukocytes. A chest film revealed a homogeneous density over the lower half of the left chest interpreted as probably due to tumor.

At this time, the history and reports of the eye tumor, the cervical mass and the breast tumor were not yet available so that a tentative diagnosis of metastatic carcinoma secondary to a breast malignancy seemed reasonable. Then the notation that the patient had an artificial eye, even though it had been worn for 35 years, suggested a consideration of metastatic melanoma in the differential diagnosis. With this in mind, the mass of nodes in the left neck was removed for pathologic diagnosis. At operation the nodes were seen to be deeply pigmented and the pathologist reported the tissue to be metastatic malignant melanoma.

The patient was discharged April 10, 1947, and was readmitted February 27, 1948. She had become bedridden in the interim with increased loss of weight and weakness. Examination revealed further spread and enlargement of the tumors. New growths were felt in the right side of the neck and in the left calf. The tumor in the right buttock had increased to the size of a grapefruit. The leukocyte count was 13,300 with 82 per cent polymorphonuclear cells. The urine was unchanged. It did not turn black after standing six hours. The patient died April 10, 1948. Permission for necropsy was refused.

#### DISCUSSION

Melanomas are generally considered the most malignant of all tumors because of very rapid and widespread growth once metastases appear. The spread is by lymphatic system and bloodstream, the latter being a late event and often absent until late in the course of the disease. When spread does occur, it is usually so extensive that hardly a tissue or organ escapes. For this reason, the prognosis is usually quite grave, the average duration of life being two to three years. Yet in some instances the outlook for life is not necessarily so grave as is usually stated. Following removal of an eye for a malignant melanoma, metastases, when they do occur, are said by Pack<sup>2</sup> almost invariably to lodge in the liver where they may not grow for as long as 10 to 20 years. What factors or mechanisms permit these metastatic cells in the liver or elsewhere to lie latent for this length of time are not known. They may be concerned with local tissue or organ insusceptibility or the development by the body of an environment unfavorable for the immediate multiplication and spread of neoplastic cells. Ewing<sup>1</sup> reported a case observed by Fisher and Box in which a large melanoma of the liver appeared 14 years after removal of a primary intra-ocular tumor. Ewing also cites a case reported by Albers in which local recurrence was noted 24 years after excision of a primary tumor.

Even though metastases have invaded the regional lymph nodes, removal of the primary tumor, the involved nodes, and intervening lymphatic channels may be followed by arrest of the disease. Pringle<sup>3</sup> reported on two personally followed patients who had not developed metastases 30 and 38 years, respectively, after radical resection of a cutaneous melanoma and the involved regional nodes without further treatment or radiation. Wilbur and Hartman<sup>4</sup> cite a report by Wilder of a case in which the patient lived 32 years before metastases occurred.

#### SUMMARY

Twenty-six years after removal of the orbit for an intra-ocular tumor, a metastatic melanoma appeared in the breast. Seven years after a simple mastectomy, metastatic melanoma appeared elsewhere.

The interval of 36 years between removal of the primary tumor and death from metastases is one of the longest reported for delayed metastases of malignant melanoma.

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### Tetraethylammonium Chloride in Post-Herpetic Neuralgia

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THE following is a report of a case of post-herpetic neuralgia successfully treated with tetraethylammonium chloride (Etamon®). It is felt that the pronounced benefit the patient derived from the therapy warrants a trial of the drug in other cases of persistent post-herpetic neuralgia.

Beneficial results from the use of tetraethylammonium chloride in the pain of herpes zoster have been reported previously by Coller<sup>1</sup> and co-workers. Nine patients were treated. The best results were obtained in five patients whose symptoms were only of weeks' or months' duration. The other four, who had had post-herpetic pain for several years, were given a total of six to 13 intravenous or intramuscular injections each, with a total of 3,500 to 6,500 mg. tetraethylammonium chloride, spaced over seven to 17 days. Three of the four patients had only temporary relief; the fourth had 50 to 75 per cent sustained relief. No explanation could be found for the failure of the therapy in cases of long standing.

#### CASE REPORT

A 61-year-old white dishwasher entered the San Francisco Hospital complaining of severe abdominal and chest pain. He had been entirely well until August 1943 when herpes zoster developed, involving an area innervated by the seventh to eleventh thoracic nerves on the left side. The patient stated that the skin manifestations cleared promptly but that severe pain had persisted and he had to take codeine for relief of the pain. Intercostal nerve blocks kept him free of

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pain for 24- to 36-hour intervals. A course of x-ray therapy gave no relief. The patient entered the San Francisco Hospital for the first time in January 1947 when, during a bout of unusually severe pain, he took bichloride of mercury with suicidal intent. He was given the usual antidotes and was treated for pain with codeine and novocain intercostal nerve blocks. He reentered in June 1947 because he was taking 12 grains of codeine daily and feared addiction. Therapy consisted of intercostal nerve block and sedation.

On his most recent entry, June 1948, he was a whining, apprehensive old man, writhing with pain, pressing a hot water bottle against the left lower chest, oblivious to surroundings, and pleading to be relieved of pain. There were post-herpetic scars at the level of the left seventh to eleventh thoracic nerves. In this area gentle stroking of the skin caused the patient to scream with pain, but deep pressure was not distressing. Otherwise, results of neurological examination and laboratory tests disclosed no abnormalities.

The patient received the first intravenous injection of tetraethylammonium chloride on June 22. He was given 7 mg. per kg. of body weight, a total of 400 mg. There was an immediate drop in blood pressure, from 120 mm. of mercury systolic and 70 mm. diastolic, to 95/60, and the patient said he felt hot, faint and dizzy, had severe tingling

and itching in the feet, and diplopia. Within five minutes the blood pressure had returned to normal and all other symptoms of reaction to the drug disappeared, except the diplopia which gradually subsided over the next two hours. The neuralgic pain began to diminish about six hours later and had completely disappeared seven hours after the injection. At this time the patient appeared as a friendly, smiling, jovial, ambulatory old man without complaints. There was no local hyperesthesia; sensitivity to pin prick was decreased over the scarred region.

One week later the pain suddenly recurred. Four cc. of the drug given intravenously gave relief within a few minutes. Further injections were given at two-, three-, four-, and six-week intervals because of recurrence of pain. In each instance the pain disappeared immediately after the injection. At the time of this report the patient had had no medication for two months and was working full time as a messenger. He had not taken codeine or other analgesics since the initial injection of tetraethylammonium chloride.

#### REFERENCE

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## Stellate Block for the Relief of Simultaneous Angina Pectoris and Motor Aphasia

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THE arterial circulation of the brain and the heart has been demonstrated to be somewhat under the control of the autonomic nervous system. Although there is no universal agreement, the general opinion is that the vasoconstrictor impulses to the intracranial and cardiac vessels are carried by the sympathetic nerves.

Stimulation of the stellate sympathetic ganglion causes a diminution of blood flow in the ipsilateral cerebral vessels,\* whereas blocking that ganglion has the opposite effect. However, whether the slight intracerebral vasoconstriction produced by stellate ganglion or other sympathetic nerve stimulation is of clinical importance is controversial.

The type and magnitude of control over the cardiac vessels exercised by the sympathetic nerves has not been settled. However, most painful sensations arising in the heart are thought to pass through the cardiac nerves that enter the sympathetic chain from the superior cervical to the fourth thoracic ganglion.

Stellate ganglion block has been used with some success for relief of angina pectoris and cerebral vascular spasm. Theoretically, therefore, the procedure should be of value in a patient having both conditions simultaneously.

The patient whose case history is presented in following paragraphs had had numerous attacks of angina pectoris and in three of these he had had motor aphasia lasting several hours. The physiologic correlation of the neurovascular mechanisms of the brain and heart is as yet obscure. However, because of the almost simultaneous relief of both the

motor aphasia and the substernal pain that followed a left stellate block in this case, one is led to conclude that there was a close relationship between these mechanisms.

#### CASE REPORT

The patient, a 65-year-old married, white male, was admitted to the neuromedical service of the Los Angeles County General Hospital on March 8, 1949, complaining of substernal pain and inability to speak.

During the past 12 years, the patient had had momentary attacks of sharp, retrosternal pain upon exertion. In 1945, he was found to have hypertension. He was first admitted to the same hospital in 1946 because of acute, anterior, myocardial infarction confirmed by electrocardiogram. At that time he had complained of severe, retrosternal pain which radiated to the right and left anterior chest at the level of the fourth rib and to the finger tips bilaterally. The blood pressure at that time was 200 mm. of mercury systolic and 130 mm. diastolic. The patient apparently made a good recovery and was discharged with instructions to take nitroglycerin.

His second admission was in April 1947, at which time he had severe precordial and substernal pain, generalized weakness and inability to speak, although he could understand what was said. The patient was right-handed. Examination revealed minimal right hemiparesis, hyperactive deep reflexes and a Babinski sign on the right. An electrocardiogram showed no changes from the tracing taken at the previous entry. There was no effect noted following carotid sinus stimulation and hyperventilation. The motor aphasia cleared spontaneously 12 hours after the patient entered the hospital (16 hours after the onset). The right hemiparesis disappeared a short time later.

The patient was observed for the third time in January 1948, when he had a 30-hour episode of motor aphasia which was associated, at the onset, with substernal pain. Examination disclosed only aphasia and Babinski's sign on the right.

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